Motor Sequence Learning

PSY310 Lab in Psychology

Lab Report

4th October 2025

Urva Thacker

AU2320044

GitHubLink:https://github.com/UrvaThacker/PSY310_Lab/tree/Motor-sequence-learning

Description and Purpose

Through the experiment, the participants learn to recognize any specific sequence or patterns. This is done to test their understanding of sequential knowledge and how it affects the process of learning altogether. The core purpose of the experiment is to evaluate the ability of individuals to learn the sequence/pattern and how they obtain and preserve the same. This gets us a view on how the cognitive process plays a role in learning and memory.

Introduction

A huge part of learning is recognizing patterns in our environment which are then used to make predictions about future events. Contingency learning and sequence learning are somewhere similar as both of them includes recognising the stimulus and response relationship. Participants tend to learn to recognise patterns and sequences in the motor sequence learning and make predictions accordingly. In this experiment, reaction time of participants is recorded under these conditions to evaluate their ability to get and preserve information that is sequential. The experiment is designed to test whether the participants show faster reaction time in sequence trials or random trials. Both reaction times are compared in order to understand their effect on memory consolidation and learning.

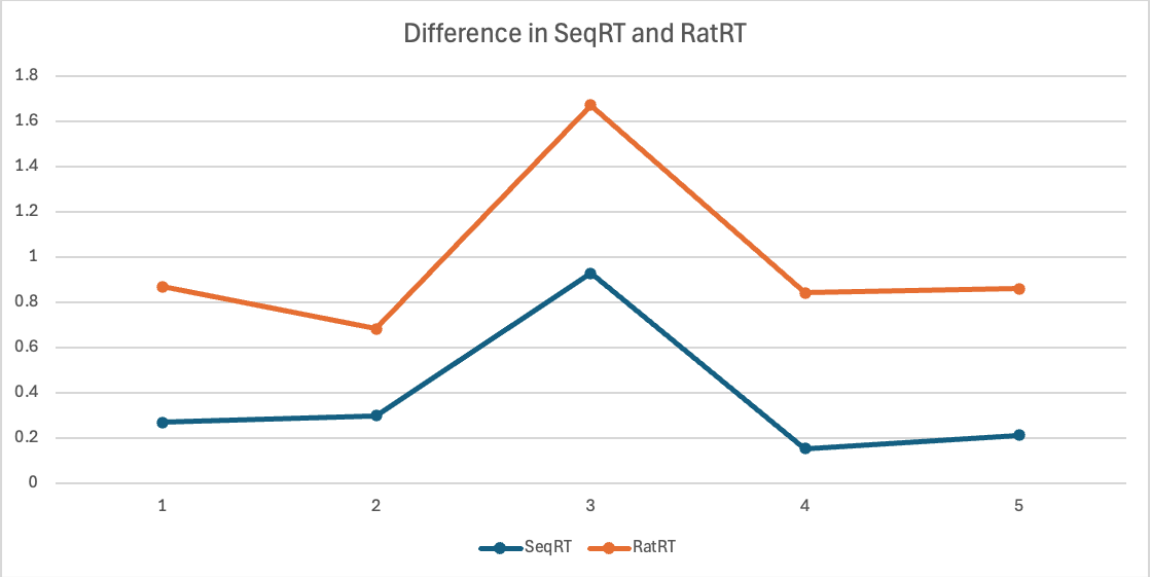
Method

Number of participants: Total of 5 participants participated in the experiment.
Number of observations: A total of 400 observations are made.

Procedure: The experiment was conducted by a programme designed on the PsychoPy app. It included two routines. One being about sequence loop and another about random loop. Routine 1 i.e sequential included fixed order. Routine 2 i.e random included randomized order. The stimulus here was a fixation cross and a bunch of polygons. The fixation cross being a triangle and polygons being rectangles.The participants had to press the key corresponding to the triangular probe. The responses were made via "Z,X,C,V" keys on the keyboard. Each response was recorded.

Results

The result gives us insight that the reaction time is comparatively faster in the sequential condition than the randomized one. 4 out of 5 participants have shown greater ability to answer briskly in sequential order.



Discussion

The hypothesis stays consistent with the result. The participants did respond quickly in sequential condition in comparison to randomized order. This sheds light on how sequential learning can can in anticipation of upcoming stimuli and thus lead to quicker reaction time. The one exception of a participant who showed slower reaction time in sequential learning could be the result of fatigue or lack of attention. The limitation of less number of participants may have affected the result. Though in the borders of this experiment, overall results do align with the hypothesis.

References

Soetens, E., Melis, A., & Notebaert, W. (2004). Sequence learning and sequential effects. *Psychological research*, *69*(1), 124-137. https://link.springer.com/article/10.1007/s00426-003-0163-4